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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,831	12/24/2003	Koji Omac	247086US8	1138
22850 7590 10/05/2007 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER LOO, JUVENA W	
			ART UNIT 2609	PAPER NUMBER
			NOTIFICATION DATE 10/05/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/743,831

Applicant(s)

OMAE ET AL.

Examiner

Juvena W. Loo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :June 08, 2004 and July 19, 2004.

DETAILED ACTION

This is in response to application filed on December 24, 2003 in which claims 1 to 7 are presented for examination.

Status of Claims

Claims 1 - 7 are pending, of which claims 1, 4, and 7 are in independent form.

Claims 1 – 7 are rejected under 35 USC 103(a).

Claim 7 is rejected under 35 USC 101.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim 7 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter claiming a management program. Software is functional descriptive material that can be considered statutory only if it is both functional and clearly embodied on a computer readable medium and designed to support specific data manipulation function. When functional descriptive material is recorded on a computer-readable medium it will become structurally and functionally interrelated the medium and will be statutory in most cases since the use of technology permits the function of the descriptive material to be realized. See *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031, 1035 (Fed. Cir 1994) and *Warmerdam*, 33 F.3d at 1360-61, 31

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USPQd at 1759. A Software structure is functional if the specific arrangement of data enables a computer to accomplish useful result arising from the arrangement of the data in the software. However, only computer readable medium executed instruction by a processor could be statutory, it is not clearly defined as being embodied in a computer readable medium as executed instruction and is therefore not statutory. See Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 - 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yano et al. (Patent No. US 7,123,599 B2) in view of Davies et al. (Patent No. US 6,594,493 B1).

Regarding claim 1, Yano discloses a mobility management node comprising: mobility management means for correlating a home address in a home network of a mobile node with a c/o address in a network where the mobile node is located after movement (Yano: Figure 6 and column 9 lines 22 - 44); binding storing means for storing the home address and the c/o address of the mobile node correlated with each other by the mobility management means (Yano: Figure 6 and column 9 lines 22 - 44);

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transition detecting means for monitoring transition of the c/o address stored in the binding storing means, and for detecting a prefix of the c/o address before the transition and a prefix of the c/o address after the transition (Yano: column 3, lines 54 – 63: routing addresses of some sub-networks are provided with a common prefix address). However, Yano fails to teach the transition history storing means for storing a transition frequency of the c/o address in correlation with the prefix of the c/o address before the transition and the prefix of the c/o address after the transition detected by the transition detecting means, the paging area forming means for extracting predetermined combinations of the prefix of the c/o address before the transition with the prefix of the c/o address after the transition, stored by the transition history storing means, and for generating paging area information by a set of said prefixes included in the extracted combinations and paging area notifying means for notifying the mobile node of the paging area information generated by the paging area forming means.

In the same field of endeavor, Davies discloses the forming of paging area based on the number of handoffs (transition frequency) and informing the mobile terminal of the list of available base stations (Davies: column 2, lines 34 through column 3, line 11 and column 6, line 61 through column 7, line 11). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the use of handoff/transition frequency in the formation of paging area into the system of Yano. The motivation is to provide create paging area dynamically.

Regarding claim 2, Yano and Davies disclose all the limitations of claim 1. Additionally, Yano discloses the use of prefix of routing addresses (Yano: Figure 10).

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However, Yano fails to teach the paging area forming means extracts combinations of the prefix before the transition with the prefix after the transition with each of which a transition frequency over a predetermined reference value is correlated among the transition frequencies stored by the transition history storing means, out of the extracted combinations, and generates the paging area information by a set of the prefixes included in the combinations finally extracted.

In the same field of endeavor, Davies discloses the forming of paging area based on the number of handoffs (transition frequency) and informing the mobile terminal of the list of available base stations (Davies: column 2, lines 34 through column 3, line 11 and column 6, line 61 through column 7, line 11). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the use of handoff/transition frequency in the formation of paging area into the system of Yano. The motivation is to provide create paging area dynamically.

Regarding claim 3, Yano and Davies disclose all the limitations of claim 2. Additionally, Yano discloses that registration time interval measuring means for measuring a registration time interval during which an address of the mobile node is continuously registered in the binding storing means (Yano: Figure 6, 604). However, Yano fails to teach the update frequency measuring means for measuring an update frequency of the c/o address of the mobile node stored in the binding storing means; wherein the paging area forming means uses a plurality of predetermined reference values different from each other to generate the paging area information as to each of the plurality of predetermined reference values, thereby generating a plurality of paging

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area information items, and wherein the paging area notifying means derives an update frequency per unit time of the c/o address of the mobile node, based on the registration time interval of the mobile node measured by the registration time interval measuring means and the update frequency of the mobile node measured by the update frequency measuring means, and notifies the mobile node of a paging area information item selected out of the plurality of paging area information items in accordance with the update frequency per unit time of the c/o address of the mobile node, based on a predetermined rule defined so that a number of prefixes included in the paging area information increases against increase of the update frequency per unit time of the c/o address.

In the same field of endeavor, Davies discloses the forming of paging area based on the number of handoffs (transition frequency) and informing the mobile terminal of the list of available base stations (Davies: column 2, lines 34 through column 3, line 11 and column 6, line 61 through column 7, line 11). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the use of handoff/transition frequency in the formation of paging area into the system of Yano. The motivation is to provide create paging area dynamically.

Regarding claim 4, Yano discloses a paging area forming method comprising: a mobility management step wherein mobility management means correlates a home address in a home network of a mobile node with a c/o address in a network where the mobile node is located after movement (Yano: Figure 6 and column 9 lines 22 - 44), and stores the addresses in correlation with each other into binding storing means (Yano:

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Figure 6 and column 9 lines 22 – 44); a transition detecting step wherein transition detecting means monitors transition of the c/o address stored in the binding storing means, detects a prefix of the c/o address before the transition and a prefix of the c/o address after the transition (Yano: column 3, lines 54 – 63: routing addresses of some sub-networks are provided with a common prefix address). However, Yano fails to teach that the transition history storing means store a transition frequency of the c/o address in correlation with the prefix of the c/o address before the transition and the prefix of the c/o address after the transition; a paging area forming step wherein paging area forming means extracts predetermined combinations of the prefix of the c/o address before the transition with the prefix of the c/o address after the transition, stored in the transition history storing means, and generates paging area information by a set of the prefixes included in the extracted combinations; and a paging area notifying step wherein paging area notifying means notifies the mobile node of the paging area information generated by the paging area forming means.

In the same field of endeavor, Davies discloses the forming of paging area based on the number of handoffs (transition frequency) and informing the mobile terminal of the list of available base stations (Davies: column 2, lines 34 through column 3, line 11 and column 6, line 61 through column 7, line 11). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the use of handoff/transition frequency in the formation of paging area into the system of Yano. The motivation is to provide create paging area dynamically.

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Regarding claim 5, Yano and Davies disclose all the limitations of claim 4. Additionally, Yano discloses the use of prefix of routing addresses (Yano: Figure 10). However, Yano fails to teach the paging area forming means extracts combinations of the prefix before the transition with the prefix after the transition with each of which a transition frequency over a predetermined reference value is correlated among the transition frequencies stored by the transition history storing means, extracts combinations having the common prefixes, out of the extracted combinations, and generates the paging area information by a set of the prefixes included in the combinations finally extracted.

In the same field of endeavor, Davies discloses the forming of paging area based on the number of handoffs (transition frequency) and informing the mobile terminal of the list of available base stations (Davies: column 2, lines 34 through column 3, line 11 and column 6, line 61 through column 7, line 11). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the use of handoff/transition frequency in the formation of paging area into the system of Yano. The motivation is to provide create paging area dynamically.

Regarding claim 6, Yano and Davies disclose all the limitations of claim 5. Additionally, Yano discloses that registration time interval measuring means measures a registration time interval during which an address of the mobile node is continuously registered in the binding storing means (Yano: Figure 6, 604). However, Yano fails to teach the update frequency measuring means measures an update frequency of the c/o address of the mobile node stored in the binding storing means; wherein in the paging

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area forming step the paging area forming means uses a plurality of predetermined reference values different from each other to generate the paging area information as to each of the plurality of predetermined reference values, thereby generating a plurality of paging areas, and wherein in the paging area notifying step the paging area notifying means derives an update frequency per unit time of the c/o address of the mobile node, based on the registration time interval of the mobile node measured by the registration time interval measuring means and the update frequency of the mobile node measured by the update frequency measuring means, and notifies the mobile node of a paging area information item selected out of the plurality of paging area information items in accordance with the update frequency per unit time of the c/o address of the mobile node, based on a predetermined rule defined so that a number of prefixes included in the paging area information increases against increase of the update frequency per unit time of the c/o address.

In the same field of endeavor, Davies discloses the forming of paging area based on the number of handoffs (transition frequency) and informing the mobile terminal of the list of available base stations (Davies: column 2, lines 34 through column 3, line 11 and column 6, line 61 through column 7, line 11). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the use of handoff/transition frequency in the formation of paging area into the system of Yano. The motivation is to provide create paging area dynamically.

Regarding claim 7, Yano discloses a mobility management program for letting a computer function as: mobility management means for correlating a home address in a

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home network of a mobile node with a c/o address in a network where the mobile node is located after movement (Yano: Figure 6 and column 9 lines 22 - 44); binding storing means for storing the home address and the c/o address of the mobile node correlated with each other by the mobility management means (Yano: Figure 6 and column 9 lines 22 - 44); transition detecting means for monitoring transition of the c/o address stored in the binding storing means, and for detecting a prefix of the c/o address before the transition and a prefix of the c/o address after the transition (Yano: column 3, lines 54 - 63: routing addresses of some sub-networks are provided with a common prefix address). However, Yano fails to teach the transition history storing means for storing a transition frequency of the c/o address in correlation with the prefix of the c/o address before the transition and the prefix of the c/o address after the transition detected by the transition detecting means, the paging area forming means for extracting predetermined combinations of the prefix of the c/o address before the transition with the prefix of the c/o address after the transition, stored by the transition history storing means, and for generating paging area information by a set of said prefixes included in the extracted combinations; and paging area notifying means for notifying the mobile node of the paging area information generated by the paging area forming means.

In the same field of endeavor, Davies discloses the forming of paging area based on the number of handoffs (transition frequency) and informing the mobile terminal of the list of available base stations (Davies: column 2, lines 34 through column 3, line 11 and column 6, line 61 through column 7, line 11). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the use of

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handoff/transition frequency in the formation of paging area into the system of Yano.

The motivation is to provide create paging area dynamically.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juvena W. Loo whose telephone number is (571) 270-1974. The examiner can normally be reached on Mon.-Thurs : 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Coby can be reached on (571) 272-4017. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juvena W Loo
Examiner
Art Unit 2609


FRANTZ COBY
SUPERVISORY PATENT EXAMINER